

## Take control of indoor humidity with a whole-home dehumidifier

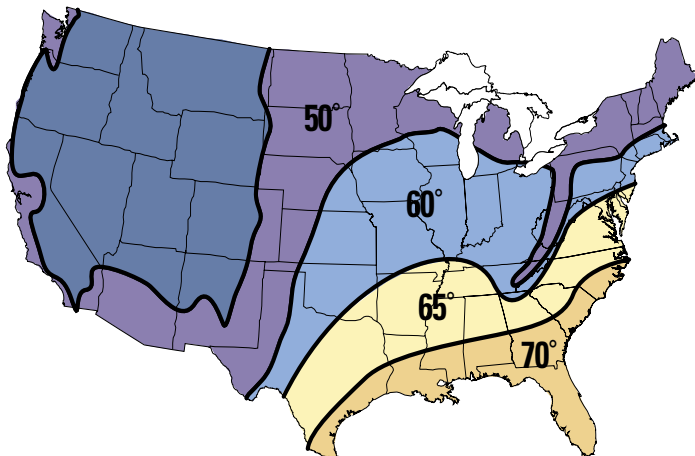
You cannot rely on air conditioners alone to control humidity in a home. They are designed for sensible cooling. Latent cooling is only a by-product.

Your customers today are not comfortable in their homes. The drive to improve energy efficiency (from better windows and insulation to higher SEER air conditioners) has greatly improved temperature control, but adversely affected humidity control. Homes have become trapped with moisture causing stuffy, clammy environments that are both uncomfortable and unhealthy.

**That is why it is critical for all your customers to install a system designed specifically to control the latent load in the home.**

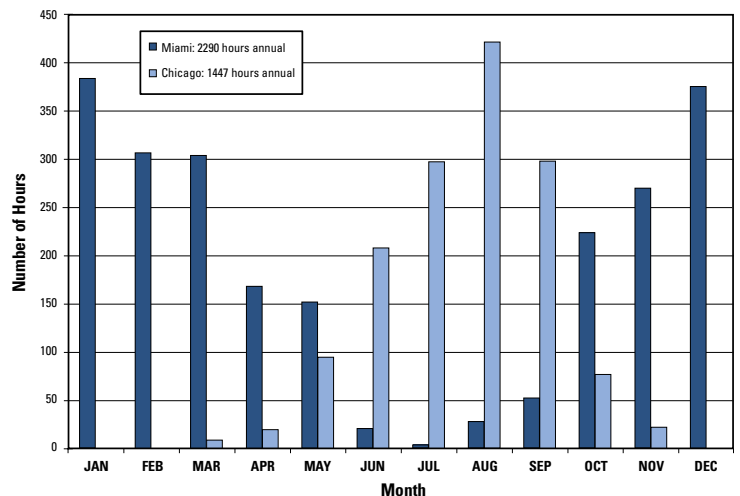
Air conditioners are controlled by a thermostat; they have no way to specifically control the humidity levels. Even attempting to override the air conditioning with advanced thermostats doesn't manage humidity; it simply overcools the home in an attempt to remove moisture. It's the wrong tool for the job.

**Whole-home dehumidification is a real need with average summer dew points exceeding 50°F in virtually all of the U.S.**



**According to *Engineered Systems* magazine, air conditioners are simply not getting the job done effectively and efficiently.**

**Number of hours when dehumidification is necessary: Time above 55°F dew point and outdoor temperature between 55°F and 75°F (humidity levels high, but air conditioner is not running)**



### Dehumidification needed throughout the country

The need for dehumidification varies in different regions. But regardless of locale, your customers need a system designed to control humidity separate from cooling. Control is needed in areas where dew points average above 55°F and at times when the air conditioner runs infrequently or not at all (evenings, cloudy/rainy days or during spring and fall seasons when temperatures are mild).

## Better air conditioning does not equal humidity control

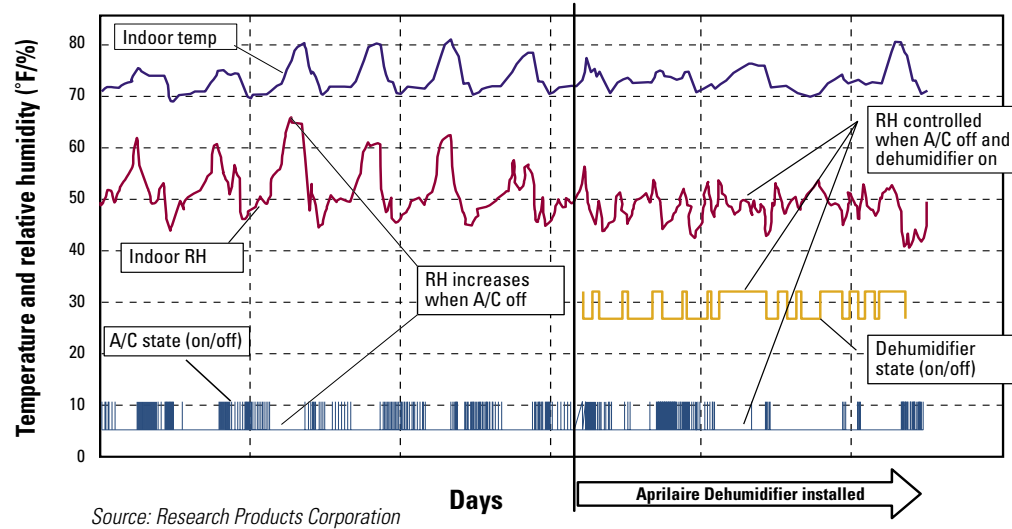
The new, higher SEER air conditioners do a great job of controlling temperature, but controlling temperature is only part of the story. Their efficiency rating is focused exclusively on sensible load. Today's units have Sensible Heat Ratios (SHR) of 0.75 or higher. To achieve higher SEER, many units take up to 8 minutes or longer to reach maximum efficiency at pulling moisture from the air. Combined with new coil designs that drop the temperature quickly in a home for faster comfort, all of these improvements in temperature control lead to the air conditioning running less frequently and, therefore, reducing the ability to decrease the latent load.

Air conditioning is sized based on peak sensible load conditions. This condition is reached only 3% of the year. The other 97% of the year, air conditioners operate at only part-load conditions, shortening run times and further reducing the amount of moisture that can be removed from a home.

- Any time a home has a reduced Sensible Heat Load (evenings, cloudy/rainy days, mild weather seasons, etc.) the air conditioner doesn't operate as frequently, so indoor RH can rise to uncomfortable levels.
- Air conditioners short cycle when not at peak load, often never reaching the point at which they can remove significant moisture.

### Installed dehumidifier provides immediate benefit in the home

Real field test data (chart to right) proves the effectiveness of the Aprilaire Dehumidifier. Before installation, indoor relative humidity spiked when the air conditioner was off, especially during daytime and overnight setbacks. After installation, the dehumidifier works together with the air conditioning system to control temperature and humidity effectively.



### The only way to control humidity is to have a system dedicated to dehumidification

Air conditioner manufacturers are offering advanced thermostats that run the air conditioner beyond the intended thermostat set point in order to reduce humidity. Extending air conditioner run time will pull additional moisture out of the air, but by design it is much more efficient at temperature control. Using the thermostat can overcool a home by as much as 3°F. According to the Florida Solar Energy Center, overcooling increases energy costs by 10% for every 1°F of cooling.

**Aprilaire is the solution to whole-home humidity control, bringing 50 years of research and expertise to deliver break-through technology.**

## Don't lose profits to portable dehumidifiers: they only do part of the job

Your customer knows there's a need to control excess moisture. Portable dehumidifier sales continue to increase. According to *Appliance Manufacturer* magazine, portable sales in 2003 grew over 60% to more than 1.5 million units.

But, portables simply do not do the whole job. They're a hassle for homeowners, with daily maintenance of emptying tanks, freezing coils and noisy operation. Because of its robust design, the Aprilaire Model 1700 Dehumidifier offers 73% more water removal per kilowatt hour than most portables over a much broader range of operating conditions.

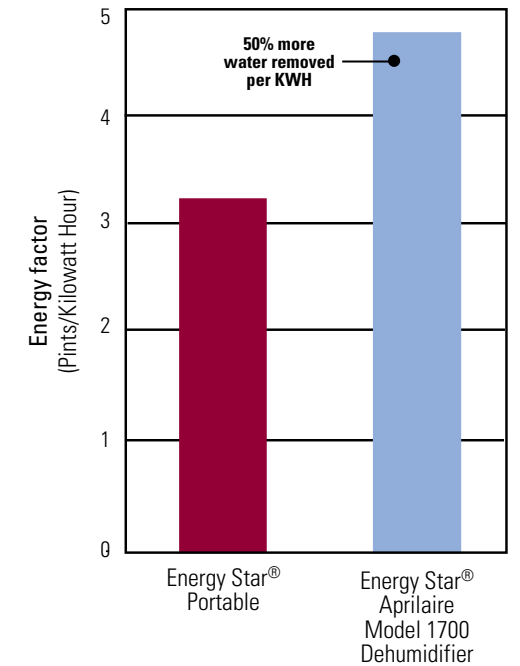
Energy efficiency is important to your customers and the Aprilaire Model 1700 delivers three times the capacity at twice the energy efficiency of typical portables.

### Innovative Aprilaire whole-home dehumidifier outperforms portables

The Aprilaire Model 1700 includes a Thermostatic Expansion Valve (TXV) which provides optimal performance of unit throughout operational range of 40°F to 105°F.

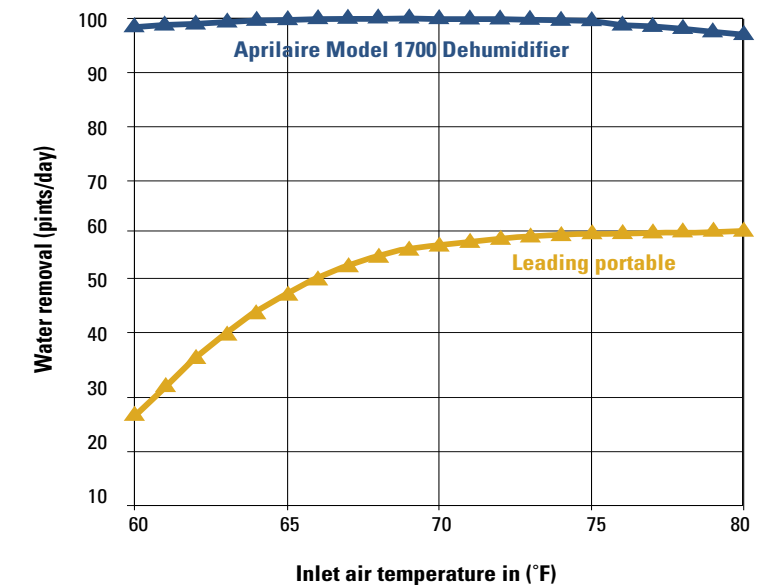
Residential portable dehumidifiers generally have a fixed restriction device, such as a capillary tube. This limits the temperature range in which portables can operate.

### Energy efficiency



### Operating range

#### Model 1700 whole-home dehumidifier versus leading portable at 60% relative humidity



Source: Research Products Corporation

# The Aprilaire Model 1700 Whole-Home Dehumidifier



## A market innovation and solution to humidity control

Aprilaire brings 50 years of research and experience in humidity control. The Aprilaire Model 1700 Dehumidifier combines whole-home comfort with built-in intelligence features like fan cycling and ventilation. Superior design allows it to remove excess moisture throughout the entire home as part of the central HVAC system. Yet it operates independently from the cooling system to control indoor humidity within the ASHRAE comfort window of 30-60% RH.

### Exceptional performance

- **Capacity of 90 pints/day** gives you the flexibility to use the dehumidifier in a wide variety of home sizes (see back page).
- **Thermostatic Expansion Valve (TXV)** allows the unit to remove more moisture across a broad range of temperatures, providing you flexibility in installation locations.
- **Quiet operation** with fully insulated interior and vibration isolation floor mounts.
- **Energy Star® rating** reflects optimized energy efficiency.

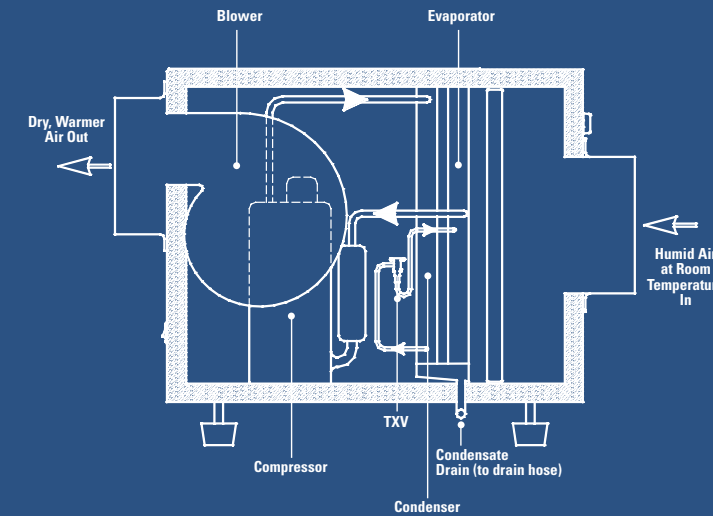
### Robust design

- **Advanced coil design** provides superior and effective humidity control.
- **Fully insulated cabinet** allows unit to be placed in attics and garages without condensation problems or heat gains from hot attic spaces. Also ensures quiet operation.
- **Design extras** including integrated filter, service valves, stainless steel drain pan and filter drier ensure you can rely on the product to perform for you and your customers.

### Intelligent solutions for indoor environments

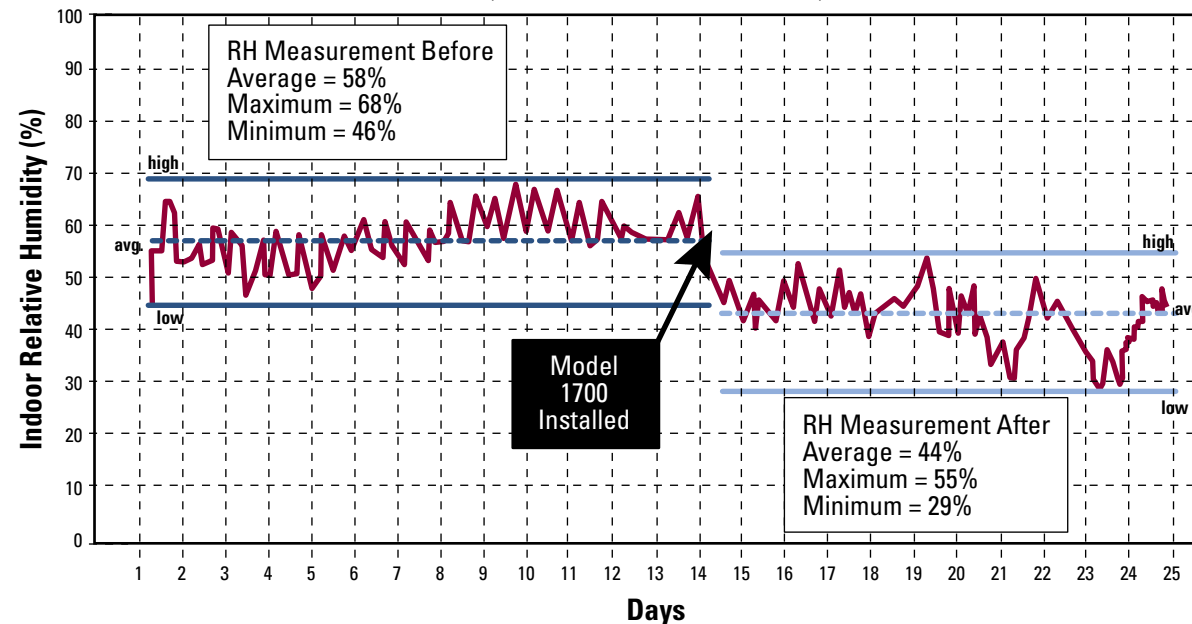
- **Automatic humidity control** automatically senses moisture levels in the home and runs only when needed. Your customer never needs to make adjustments to maintain proper moisture levels.
- **Built-in automatic switching** from whole-home mode to basement so you simply wire dampers and the dehumidifier takes over operation.
- **Optional living space control** provides in-room control for customers who want access in their living space (available Summer 2004).
- **Built-in fan cycling** improves humidity and temperature balance throughout the home, minimizing hot/cold spots and improving air cleaner, dehumidifier and humidifier performance for better overall comfort.
- **Built-in ventilation** brings in the proper quantity and quality of outside air, customizable to any home size.

## How the Aprilaire Dehumidifier works



- Moist air is pulled from the living space, basement or HVAC return through the dehumidifier evaporator coil using an internal blower.
- Refrigerant in the evaporator coil cools the air passing over the coil to below dew point. The custom, extra-thick evaporator coil is specially designed to maximize the condensation of moisture. As a result, moisture condenses on the coil and drips off into the drain pan. The unit will remove 90 pints per day (minimum) at 80°F and 60% RH.
- The cool, dehumidified air then passes through the condenser coil. As it does, the hot refrigerant in the condenser coil warms the air.
- The warm, dry air is then discharged to the living space, basement or HVAC supply duct. The dehumidified air can be mixed throughout the whole-home with the use of the built-in fan cycling feature.

Measured field data shows the instant benefits of installed dehumidification  
(Thermostat Set Point Constant at 75°F)



### Research-backed to deliver immediate benefit

Aprilaire monitored the relative humidity in a test home for 13 days prior to installing an Aprilaire Dehumidifier. The purpose was to determine the effect on the indoor relative humidity range, which experts identify as between 30% and 60%. Prior to installing the Aprilaire Dehumidifier, the average relative humidity level was 58% and there was a significant amount of time over 60% (outside the recommended range). After the Aprilaire whole-home dehumidifier was installed, the average relative humidity dropped 14% and never exceeded 55%, so the home's relative humidity levels stayed within the optimum range.

**This field test data demonstrates that the Aprilaire whole-home dehumidifier makes a significant impact in controlling humidity and enhancing comfort.**

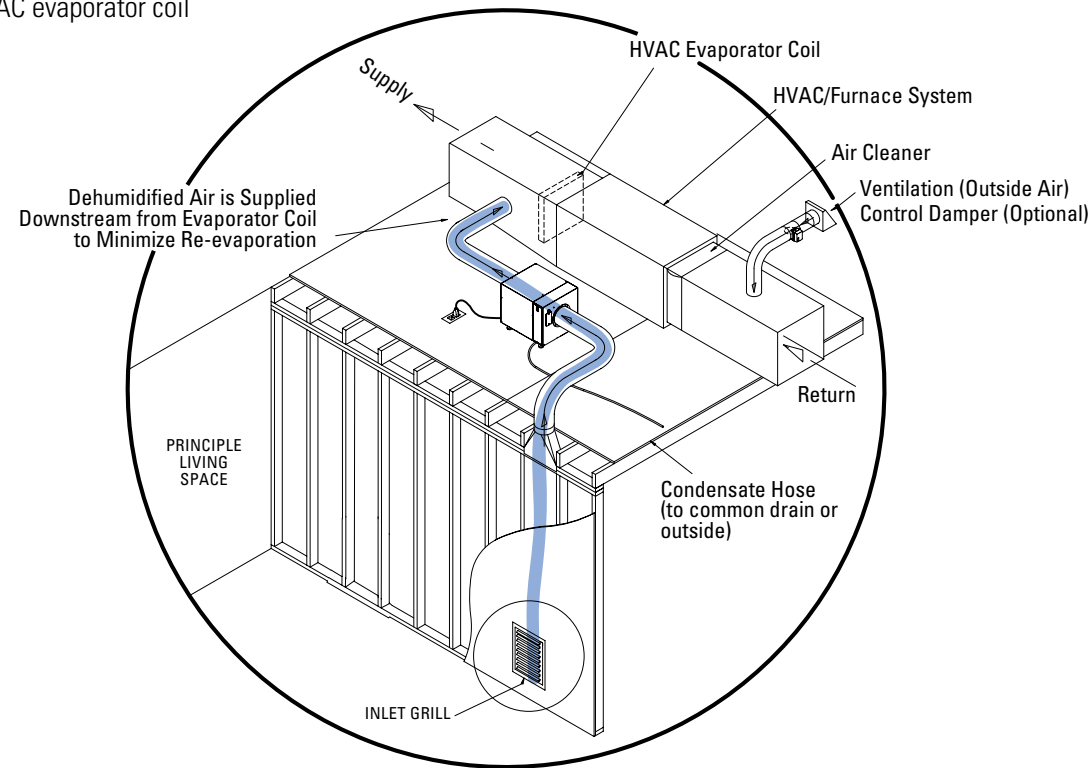
# The Aprilaire Model 1700 Dehumidifier offers installation flexibility for every need

## Whole-home, living space to supply:

The dehumidifier pulls air directly from the principle living space with a dedicated return grill and is returned to the HVAC system downstream of the HVAC evaporator coil in the main supply duct.

### Applications:

- **New homes**
- **Attics**
- **Homes without basements**

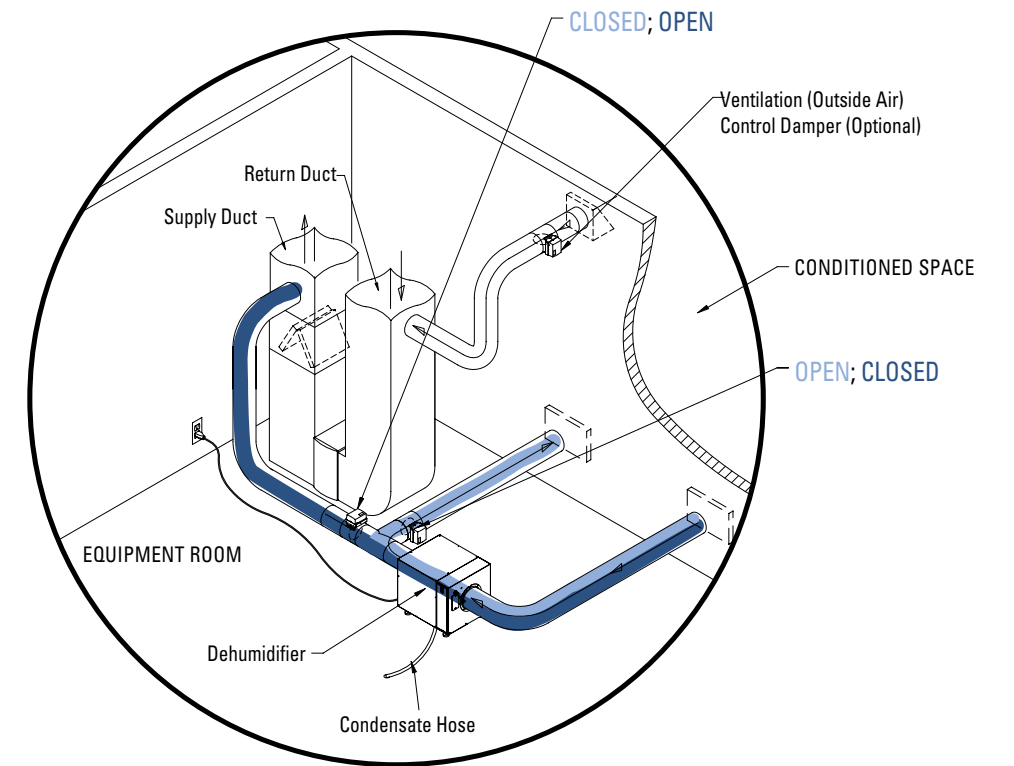


## Whole-home, convertible to basement:

The dehumidifier automatically switches between whole-home dehumidification when the HVAC blower is on and localized dehumidification when the HVAC blower is off.

### Applications:

- **Finished basements**
- **Finished lower levels**



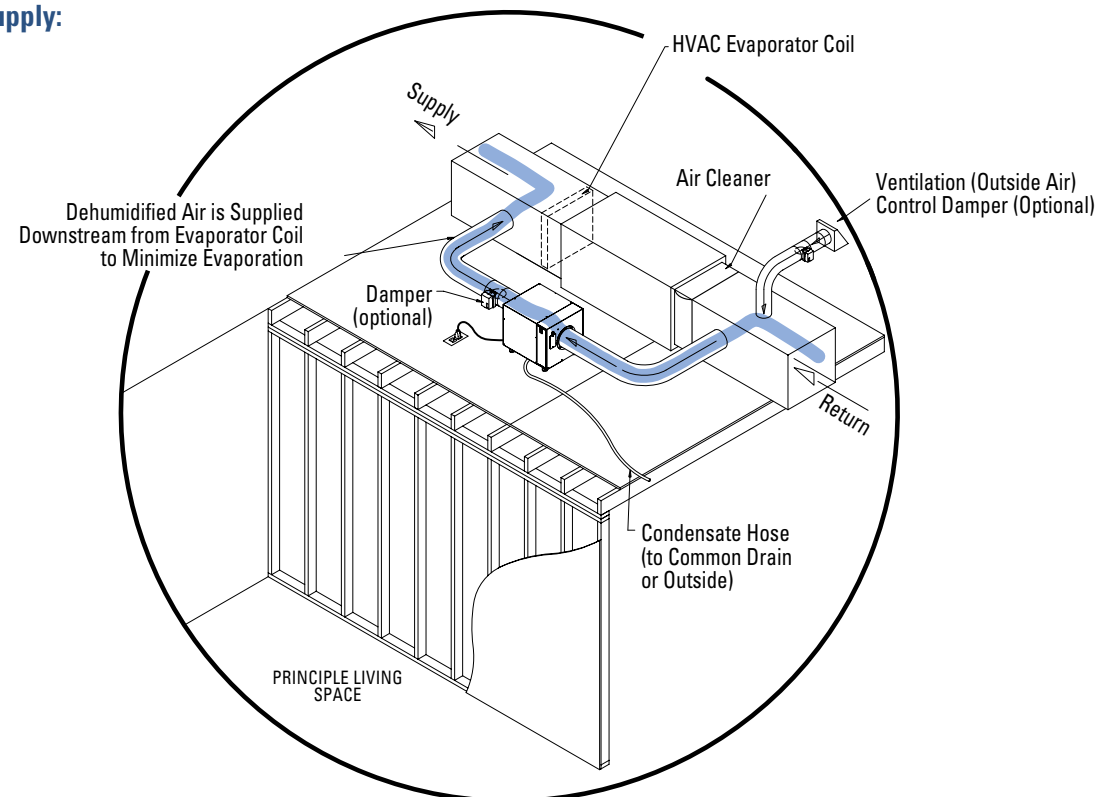
Operating as a whole-home system  
Automatically converted to localized system

## Whole-home, pulling from the return to supply:

The dehumidifier pulls air from the return and puts it back above the HVAC evaporator coil.

### Applications:

- **New homes**
- **Existing homes without easy access to the living space**

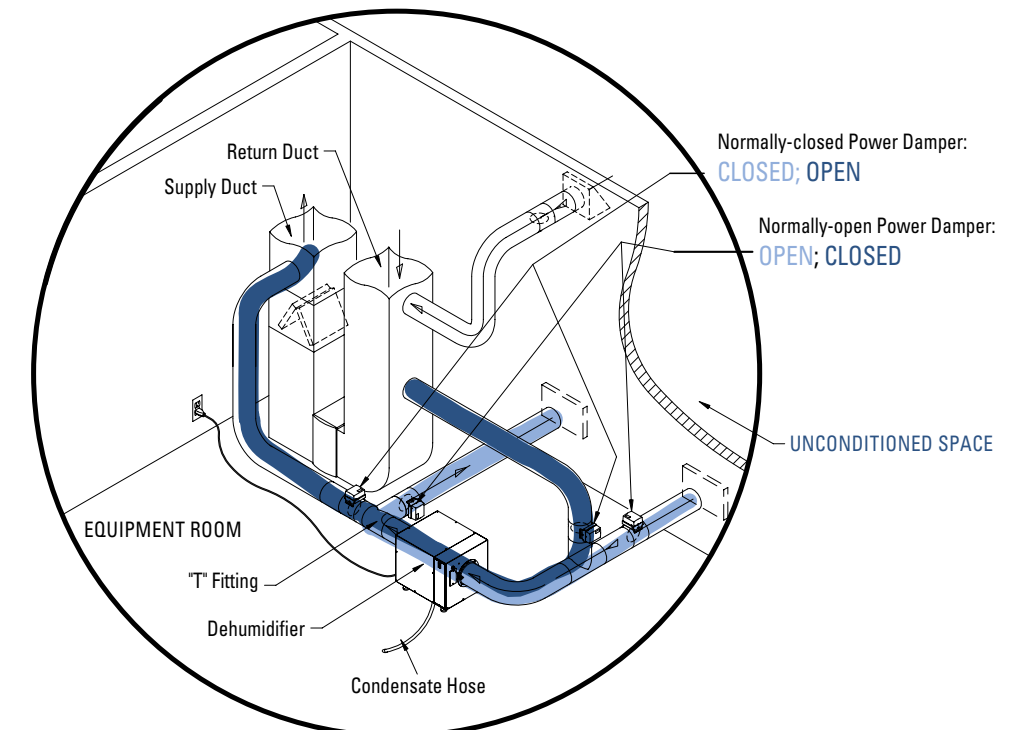


## Whole-home, with basement option:

The dehumidifier automatically switches between whole-home dehumidification when the HVAC blower is on and localized dehumidification in an unconditioned space when the HVAC blower is off. A set of dampers is used to separate conditioned and unconditioned spaces.

### Applications:

- **Unfinished basements**
- **Crawl spaces**



Operating as a whole-home system  
Automatically converted to localized system



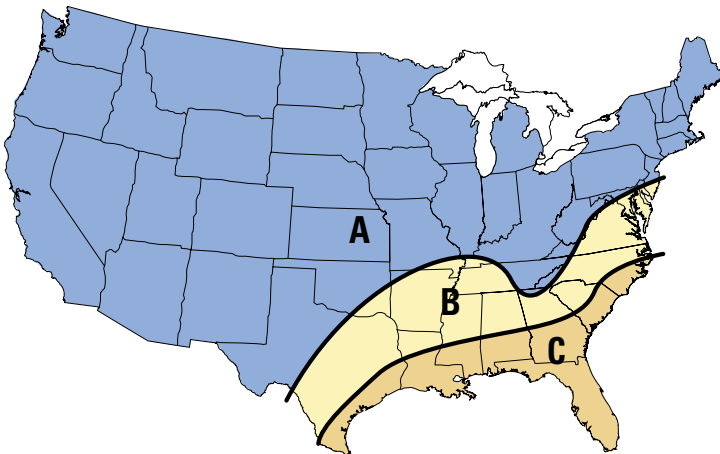
Offer the Aprilaire Model 1700 Dehumidifier to meet customers' needs for proper dehumidification and differentiate your business

**Unit specifications**

- **Dimensions:** 20"W x 24"L x 21.5"H.
- **Weight:** 100 lbs.
- **Capacity:** 90 pints per day @ 80°F, 60% RH (AHAM).
- **Power:** 115 VAC, 9 Amps. Unit equipped with an 8 ft. power cord.
- **Efficiency:** Energy Star<sup>®</sup> Rated (≥4.76 pints/kilowatt hour).
- **Airflow:** 275 CFM @ 0.6 in. of w.c. external static pressure.
- **Filter:** Washable or replaceable, Merv 8, foam core and aluminum frame.
- **Controls:** Built-in automatic control, optional living space control.
- **Interior insulation:** Entire interior surface is sealed with 1" foil-faced EPS (expanded polystyrene) insulation.
- **Home size:** See chart below for sizing.



**Model 1700 Dehumidifier**



**Maximum recommended house size**

	Air Changes per Hour (ACH)		
	1.00	0.50	0.35
<b>Region A</b>	3,600	5,000	5,000
<b>Region B</b>	2,800	4,500	5,000
<b>Region C</b>	1,700	2,600	3,400